

### ABSTRACT OF THE DISCLOSURE

A system and method for statistically analyzing QT interval as a function of changes in the RR interval. The system and method utilize three statistical comparisons to fully characterize the QT response: (1) the comparison of curves to give an overall effect; (2) the incidence of points exceeding a baseline upper 95% single-point prediction bound to reflect the degree of heterogeneity of ventricular repolarization; and (3) the magnitude of these points to provide a quantitative assessment of treatment-induced changes in the QT-RR relationship. The system and method use the relationship between the QT interval and heart rate (RR interval) to reference a control baseline response. Data from mammals such as humans and dogs, and pharmacological maneuvers using both cardiac and non-cardiac therapeutic agents, may be used with this multi-parameter statistical system and method. Additionally, the system and method quantifies the incidence and magnitude of points lying outside the upper 95% single-point prediction limit of the regression analysis for vehicle versus treatment.